

## ORIGINAL PAPER - SUPPLEMENTARY MATERIAL

# Is Silodosin better than Tadalafil as a medical expulsive therapy in lower ureter stones?

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**Table 1.**  
Characteristics of the included studies.

| Study ID (last name of the 1 <sup>st</sup> author) | Location       | Year | Study design               | Population  | Intervention    | Comparator     | Outcome  | Key findings   |
|--|----------------|------|----------------------------|---|-----------------|----------------|--|--|
| Diab et al (17)                                    | Benha, Egypt   | 2024 | Clinical Trial             | Patients aged 18 years or older diagnosed with distal ureteric stones ranging from 5 to 10 mm in size                                     | Tadalafil 5 mg  | Silodosin 8 mg | xpulsion time, Expulsion rate, Expelled stone size, hospital visits and Side effects | Silodosin is insignificantly better than Tadalafil, however The combination of Tadalafil with Silodosin as a MET has shown to be more effective and safer compared tousing either medication as a monotherapy  |
| Fasseh et al (18)                                  | Cairo, Egypt   | 2023 | Clinical Trial             | Adult patients of both Sexes who had a single, unilateral lower ureteric stone (beneath the sacroiliac joint) between 4 and 10 mm in size | Tadalafil 5 mg  | Silodosin 8 mg | Expulsion time, Expulsion rate, and Side effects                                     | There were increased expulsion rates for distal ureteral stones with Silodosin and Tadalafil, but no statistically significant differences between the two groups. All of the examined groups were able to handle the mild to moderate adverse effects |
| Sharma et al (19)                                  | India          | 2023 | Prospective cohort study   | Patients diagnosed with lower ureteric stones in the size range of 5-10 mm and aged over 18 years were included in the study              | Tadalafil 10 mg | Silodosin 8 mg | Expulsion time, Expulsion rate, and Side effects                                     | No significant difference was observed between Tadalafil and Silodosin, However the combination of them may have positive trends toward stone expulsion time and rate  |
| Abdelaal et al (20)                                | Cairo, Egypt   | 2022 | Clinical Trial             | Patients, aged from 20 to 60 years, presented with a single lower ureteric stone from 5 mm to 10 mm in size                               | Tadalafil 5 mg  | Silodosin 8 mg | Expulsion rate, Analgesic dose, hospital visits and Side effects                     | Tadalafil is more effective than Silodosin in treatment of patients with distal ureteric stones ≤ 10 mm as regard stone expulsion rate, time with decreased number colicky episodes and side effects   |
| Gur et al (21)                                     | Samsun, Turkey | 2021 | Retrospective Cohort Study | Male patients aged 18-55 years, with single stone 4-9.9 mm in size in the distal ureter   | Tadalafil 5 mg  | Silodosin 8 mg | Expulsion time and Side effects  | No significant of superiority in terms of effectiveness or duration between Silodosin and Tadalafil for distal ureteral stones, with minimal drug side-effects   |

|                              |                |      |                            |   |                 |                 |  |   |
|------------------------------|----------------|------|----------------------------|---|-----------------|-----------------|--|---|
| <i>Khereddine et al (22)</i> | Tunis, Tunisia | 2020 | Clinical Trial             | Adult patients > 18 years presenting with non-obstructive pelvic ureteral stones sized 8 to 10 mm | Tadalafil 5 mg  | Sildenafil 8 mg | Expulsion rate, expulsion time, analgesic use, and Serious adverse effects | No significant difference was found for stone clearance rate and expulsion time between both groups No serious side effects were noted                    |
| <i>Celik et al (23)</i>      | Izmir, Turkey  | 2018 | Retrospective Cohort Study | Patients > 18 year old male patients with uncomplicated ureteral stones of < 10 mm diameter       | Tadalafil 5 mg  | Sildenafil 8 mg | Expulsion rate, Expulsion time and Percentages of hydronephrosis           | Tadalafil showed a significantly lower stone expulsion time compared with Sildenafil for distal ureteral stones   |
| <i>Kumar et al (24)</i>      | India          | 2014 | Clinical Trial             | Patients aged > 18 years with a ureteral stone of 5-10 mm in size                                 | Tadalafil 10 mg | Sildenafil 8 mg | Expulsion time, Expulsion rate, Analgesic dose and Side effects            | Sildenafil and Tadalafil increase ureteric stone expulsion significantly along with better control of pain and significantly lesser analgesic requirement |

**Table 2.**  
Characteristics of included population.

| Study                   | Group      | Sex number             | Age (years)   | Baseline BMI | Stone size (mm) | Side (n %)                          | Stone expulsion rate (%) | Stone expulsion time (days) |
|-------------------------|------------|------------------------|---------------|--------------|-----------------|-------------------------------------|--------------------------|-----------------------------|
| <i>Diab et al</i>       | Tadalafil  | Males 29<br>Females 15 | 35.7±6.8      | 24.1±2.4     | 6.9 ± 3.0       | Right 24 (54.5%)<br>Left 20 (45.5%) | 61.4%                    | 18±3.3                      |
|                         | Sildenafil | Males 26<br>Females 16 | 39.2±7.9      | 23.9±2.2     | 6.9 ± 3.0       | Right 23 (54.8%)<br>Left 19 (45.2%) | 71.4%                    | 14.1±4                      |
| <i>Fasseh et al</i>     | Tadalafil  | Males 35<br>Females 15 | 40.5 ± 14.4   | NA           | 6.8 ± 1.9       | Right 23 (46%)<br>Left 27 (54%)     | 78%                      | 8.4 ± 4.8                   |
|                         | Sildenafil | Males 34<br>Female 16  | 38.5 ± 13.3   | NA           | 7.08 ± 1.8      | Right 23 (46%)<br>Left 27 (54%)     | 86%                      | 7.7 ± 4.8                   |
| <i>Sharma et al</i>     | Tadalafil  | Males 36<br>Females 21 | 34.94 ± 7.07  | 22.97 ± 1.9  | 5.97 ± 2.31     | Right 25<br>Left 32                 | 52.63%                   | 9.86 ± 1.90                 |
|                         | Sildenafil | Males 30<br>Females 24 | 37.87 ± 9.62  | 23.56 ± 2.2  | 6.17 ± 2.03     | Right 21<br>Left 33                 | 79.63%                   | 8.43 ± 1.57                 |
| <i>Abdelaal et al</i>   | Tadalafil  | Males 34<br>Females 16 | 41.9          | NA           | 6.9 ± 1.5       | NA                                  | 90%                      | 8.7 ± 3.3                   |
|                         | Sildenafil | Males 32<br>Females 18 | 41.3          | NA           | 6.9 ± 1.6       | NA                                  | 76%                      | 11.3 ± 4.2                  |
| <i>Gur et al</i>        | Tadalafil  | NA 46                  | 39.6          | 27.8 ± 4.67  | 6.2 ± 1.7       | Right 22 (47.8%)<br>Left 24 (52.2%) | 78.3%                    | 11.08 ± 6.31                |
|                         | Sildenafil | NA 49                  | 41.5          | 27.1 ± 2.7   | 6.3 ± 1.9       | Right 24 (49%)<br>Left 25 (51%)     | 81.6%                    | 10.33 ± 6.11                |
| <i>Khereddine et al</i> | Tadalafil  | Males 16<br>Females 14 | 45.2 ± 12.94  | NA           | 9.14 ± 0.82     | Right 16<br>Left 14                 | 23.33%                   | 10.57 ± 3.40                |
|                         | Sildenafil | Males 20<br>Females 10 | 43.03 ± 12.42 | NA           | 8.93 ± 1.07     | Right 14<br>Left 16                 | 23.33%                   | 10.71 ± 3.98                |
| <i>Celik et al</i>      | Tadalafil  | Males 30<br>Females 0  | 46.3 ± 9.9    | 27.1 ± 4.3   | 4.7 ± 1.8       | NA                                  | 90%                      | 5.7 ± 3.4                   |
|                         | Sildenafil | Males 35<br>Females 0  | 39.2 ± 11     | 27.2 ± 3.7   | 4.5 ± 1.7       | NA                                  | 88.6%                    | 10.9 ± 10.1                 |
| <i>Kumar et al</i>      | Tadalafil  | Males 67<br>Females 23 | 37.5 ± 13.50  | 26.15 ± 2.5  | 7.77 ± 1.35     | NA                                  | 66.67%                   | 16.2 ± 4.2                  |
|                         | Sildenafil | Males 64<br>Females 26 | 36.73 ± 12.00 | 26.99 ± 2.93 | 7.50 ± 1.30     | NA                                  | 83.3%                    | 14.8 ± 3.3                  |

**Table 3.**  
Adverse events.

| Study            | Group     | Stone expulsion rate (%) | Stone expulsion time (days) | Analgesic dose (mg) | Headache (mm) | Backache  | Dizziness | Orthostatic hypotension | Abnormal ejaculation | Pain episodes |
|------------------|-----------|--------------------------|-----------------------------|---------------------|---------------|-----------|-----------|-------------------------|----------------------|---------------|
| Diab et al       | Tadalafil | 61.4%                    | 18 ± 3.3                    | 612.5 ± 334.9       | 9 (20.5%)     | 4 (9.1%)  | 4 (9.1%)  | 2 (4.5%)                | 1 (2.3%)             | 1.6 ± 0.9     |
|                  | Silodosin | 71.4%                    | 14.1 ± 4                    | 508.9 ± 480.5       | 6 (14.3%)     | 1 (2.4%)  | 3 (7.1%)  | 2 (4.8%)                | 22 (52.4%)           | 1.1 ± 1.2     |
| Fasseh et al     | Tadalafil | 78%                      | 8.4 ± 4.8                   | NA                  | 6 (12%)       | 6 (12%)   | 5 (10%)   | 3 (6%)                  | 0 (0%)               | 4.4 ± 4.6     |
|                  | Silodosin | 86%                      | 7.7 ± 4.8                   | NA                  | 6 (12%)       | 2 (4%)    | 4 (8%)    | 10 (20%)                | 11 (22%)             | 4.6 ± 4.5     |
| Sharma et al     | Tadalafil | 52.63%                   | 9.86 ± 1.90                 | NA                  | 1 (1.75%)     | NA        | 1 (1.75%) | 1 (1.75%)               | 1 (1.75%)            | NA            |
|                  | Silodosin | 79.63%                   | 8.43 ± 1.57                 | NA                  | 3 (5.55%)     | NA        | 5 (9.25%) | 2 (3.70%)               | 6 (11.11%)           | NA            |
| Abdelaal et al   | Tadalafil | 90%                      | 8.7 ± 3.3                   | 120 ± 55.3          | 7 (14%)       | 4 (8%)    | 3 (6%)    | 2 (4%)                  | 3 (6%)               | NA            |
|                  | Silodosin | 76%                      | 11.3 ± 4.2                  | 163 ± 77.5          | 6 (12%)       | 9 (18%)   | 7 (14%)   | 9 (18%)                 | 12 (24%)             | NA            |
| Gur et al        | Tadalafil | 78.3%                    | 11.08 ± 6.31                | 667 ± 1530          | 7 (15.2%)     | 7 (15.2%) | NA        | 3 (6.5%)                | 2 (4.3%)             | 0.3 ± 0.8     |
|                  | Silodosin | 81.6%                    | 10.33 ± 6.11                | 333 ± 764           | 6 (12.2%)     | 5 (10.2%) | NA        | 3 (6.1%)                | 8 (16.3%)            | 0.3 ± 0.8     |
| Khereddine et al | Tadalafil | 23.33%                   | 10.57 ± 3.40                | NA                  | NA            | NA        | NA        | NA                      | NA                   | NA            |
|                  | Silodosin | 23.33%                   | 10.71 ± 3.98                | NA                  | NA            | NA        | NA        | NA                      | NA                   | NA            |
| Celik et al      | Tadalafil | 90%                      | 5.7 ± 3.4                   | NA                  | NA            | NA        | NA        | NA                      | NA                   | NA            |
|                  | Silodosin | 88.6%                    | 10.9 ± 10.1                 | NA                  | NA            | NA        | NA        | NA                      | NA                   | NA            |
| Kumar et al      | Tadalafil | 66.67%                   | 16.2 ± 4.2                  | 215 ± 12.4          | 15.5%         | 15.5%     | 15.5%     | 10%                     | 4 (5.9%)             | 1.6 ± 0.8     |
|                  | Silodosin | 83.3%                    | 14.8 ± 3.3                  | 195 ± 10.2          | 12.2%         | 10%       | 8.8%      | 3.3%                    | 10 (15.6%)           | 0.8 ± 0.9     |

**Table 4.**  
Newcastle Ottawa Scale (NOS)

| Study                                      | New Castle Ottawa scale assessment (NOS) |                           |  |   |                       |   |                                  |   |               | Quality score |  |
|--|--|---------------------------|--|---|-----------------------|---|----------------------------------|---|---------------|---------------|--|
|  | Cohort studies                           |                           |  |   |                       |   |                                  |   |               |               |  |
|  | Selection                                |                           |  |   | Comparability         | Outcome   |                                  |   | Quality score |               |  |
| Represent-activeness of the exposed cohort | Selection of the non-exposed cohort      | Ascertainment of exposure | Demonstration that outcome of interest was not present at start of study | Comparability of cohorts on the basis of the design or analysis | Assessment of outcome | Was follow-up long enough for outcomes to occur | Adequacy of follow up of cohorts |   |               |               |  |
| Celik et al 2018                           | *  |                           | *  | *   | *                     | *   | *                                | * | 7             | good          |  |
| Gur et al 2021                             | *  |                           | *  | *   | *                     | *   | *                                | * | 7             | good          |  |
| Sharma et al 2023                          | *  | *                         | *  | *   | *                     | *   | *                                | * | 8             | good          |  |