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FOR IMMEDIATE RELEASE

Press Release

The first two cases in Hong Kong using Irreversible Electroporation (IRE) for prostate cancer treatment have demonstrated extremely low side effects, maintaining the quality of life for patients

(Hong Kong – January 15, 2025) Prostate cancer is the third most prevalent cancer among men in Hong Kong, with approximately 40% of diagnosed patients identified at stages one or two. Traditional treatment options often involve whole-organ approaches, such as prostatectomy or radiation therapy, which can lead to side effects that affect urinary, sexual, and rectal functions, thereby compromising quality of life. In recent years, the medical community has begun to explore focal therapies, which focus on organ preservation and the targeted elimination of cancer cells.

Hong Kong Adventist Hospital - Stubbs Road (HKAH-SR) has recently introduced the minimally invasive technique of Irreversible Electroporation (IRE) and has successfully completed two cases. The procedures went smoothly, with patients recovering swiftly and experiencing no post-surgical side effects. Additionally, the hospital has established a Robotic Surgery Center equipped with the latest fourth-generation Da Vinci robotic surgery system, allowing for precise, minimally invasive prostate removal and the development of personalized treatment plans to maintain patient quality of life.

Prostate Cancer Cases Surge Significantly

According to the latest data from the Hospital Authority, Hong Kong recorded 2,758 new cases of prostate cancer in 2022, making it the third most common cancer among men and ranking fourth in male cancer mortality. Compared to other common cancers, prostate cancer has shown a significant increase, with a cumulative growth of 69.1% from 2012 to 2022.

Dr. Ma Wai Kit, a Consultant in Urology at HKAH-SR notes that prostate cancer staging is typically classified intro four stages based on tumor size (T), lymph node involvement (N), and metastasis to other organs (M). Approximately 38% of new patients are diagnosed at stage one or two, indicating that the tumor has not yet spread beyond the prostate.

Traditional Treatments and Challenges

The treatment options for prostate cancer depend on the activity level and extent of the cancer cells. Some cancer cells grow slowly, while others are more aggressive. Therefore, when formulating a treatment plan, multiple factors must be considered, including age, health status, cancer stage, life expectancy, patient preferences, as well as the levels and rate of increase of prostate-specific antigen (PSA) and the Gleason score. Dr. Ma highlights that a higher Gleason score indicates a faster growth and a higher risk of spreading for prostate cancer.

For different stages of prostate cancer, treatment plans vary. Dr. Ma notes that for stage one and two, options typically include active surveillance (regular blood tests and biopsies) or whole-organ treatments such as radical prostatectomy or radiation therapy. Stage three may require a radical prostatectomy along with pelvic lymph node removal or the option of radiation therapy. Treatment for stage four includes hormone therapy, chemotherapy, newer oral hormone inhibitors, and radiation therapy. However, traditional whole-organ treatments can lead to side effects affecting urination, sexual function, and rectal health, which may impact the patient's quality of life.

New Direction in Prostate Cancer Treatment: Focal Therapy

With the rise of personalized cancer treatment, significant breakthroughs have emerged in the management of prostate cancer. Focal therapy are now available for suitable patients, allowing for the preservation of the prostate and its functions. Dr. Ma explains that focal treatment targets tumors confined to the prostate (usually on one side) without spreading to other tissues or organs. The goal is to destroy cancer cells while preserving healthy tissue, thereby reducing side effects and complications.

Currently, there are several focal treatment methods available, including High-Intensity Focused Ultrasound (HIFU), Cryoablation, Microwave Ablation, and Irreversible Electroporation (IRE). Dr. Ma emphasizes that IRE can effectively destroy targeted tissue without using heat, making it safe for application near critical structures while minimizing long-term damage. Additionally, the procedure is quicker compared to other methods.

IRE: A New Treatment Technique

Irreversible Electroporation (IRE) involves inserting several electrode needles through the skin to surround cancer cells, allowing electric currents to pass through the cancer cells without damaging blood vessels or nerves. This process creates pores in the cancer cell membranes, disrupting their internal balance and preventing normal function, leading to gradual cell death. Dr. Ma highlights that IRE's unique advantage over other focal treatments is its non-thermal, non-freezing nature, which effectively preserves the integrity of surrounding critical structures

and eliminates the risk of thermal spread (the phenomenon where blood flow carries away heat, reducing treatment effectiveness on nearby cancer cells). During the procedure, ultrasound is used for real-time monitoring to ensure cancer cells are destroyed.

In the surgical process, needles are placed to target the tissue. Typically, two electrodes are activated at a time, but four to six electrodes are generally used in each case to ensure comprehensive coverage of the cancer cells. Once the electrodes are positioned, the doctor initiates electrical pulses to destroy the cancer cells. The surrounding healthy prostate tissue remains intact, avoiding damage. The surgery takes approximately 1 to 1.5 hours, and the catheter is usually removed within 24 hours post-operation, allowing normal urination without any risk of incontinence. Patients can typically return home within one to two days after the procedure.

Only 4.1% severe side effects

A large study conducted in the United States published in 2024 has show that IRE has minimal severe side effects at only 4.1%, with no cases of urinary incontinence, and 90.1% of patients maintaining erectile function within 90 days post-operation. The U.S. Food and Drug Administration also approved this technology for prostate tissue ablation treatment in December 2024, and it has received CE certification from the European Union.

Successful Completion of Two Cases

HKAH-SR recently completed two successful cases of IRE for prostate cancer treatment in December 2024. Dr. Ma shared that the first case involved an 81-year-old man who had previously undergone atrial ablation and had well-controlled heart rhythm for nearly a decade. He had been taking medication for benign prostatic hyperplasia and maintained normal daily living activities, including traveling. However, he was diagnosed with stage two prostate cancer in November of the previous year and sought the safest option for focal treatment while preserving his prostate. Ultimately, he chose IRE. On the same day after the procedure, he resumed a normal diet, and two days later, the urinary catheter was successfully removed, allowing him to go home. During a follow-up appointment one week post-treatment, he reported no physical discomfort, normal urination, and no skin swelling or pain.

The second case involved a 75-year-old man who had undergone embolization for a benign pancreatic artery aneurysm. Health checks showed his prostate-specific antigen (PSA) levels rose from 3.85 mg/dL in August 2023 to 5.0 mg/dL in October 2024, with no urinary symptoms. Diagnosed with stage one prostate cancer in November last year, biopsy tissues showed 5% cancer cells. Faced with options of active surveillance or focal treatment, the patient chose IRE to safely treat the cancer cells and preserve his prostate. The surgery took 1 hour and 5

minutes, and he resumed his normal diet on the same day, successfully had his urinary catheter removed, and was discharged the following day.

Establishment of the Robotic Surgery Center at HKAH-SR

HKAH-SR established a Robotic Surgery Center and introduced the latest robotic systems, including the fourth-generation Da Vinci robotic surgical system last year. Dr. Ma notes that this system can be utilized for various surgical procedures, including prostate cancer removal. It enhances surgical precision through clear imaging, allowing for the preservation of vital nerves and blood vessels, thereby improving patient safety and postoperative outcomes.

By combining robotic-assisted surgery with IRE, doctors can select the most suitable treatment plan tailored to each patient's specific circumstances, achieving true personalized care. Dr. Ma emphasizes that different treatment options come with varying levels of effectiveness, side effects, and risks. Therefore, patients should discuss their choices thoroughly with their primary physician to determine the best treatment approach for their individual needs.

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即時發佈

新聞稿

本港首兩宗使用

微創電穿孔局部消融術治療前列腺癌

副作用極低，維持患者生活質素

（香港——2025 年 1 月 15 日）前列腺癌位列本港常見癌症的第三位，接近四成患者在確診時屬於第一至二期。傳統的治療方法多為全器官治療，例如前列腺全切除手術或放射治療，這些方法可能對患者的排尿、性功能及直腸造成副作用，影響生活質素。近年，隨著局部治療的出現，醫療界開始尋求保留器官並針對性清除癌細胞的方案。

香港港安醫院—司徒拔道(香港港安)早前引入微創電穿孔局部消融術（Irreversible Electroporation），並已成功完成兩宗個案，手術過程順利，患者康復迅速，且無術後副作用。此外，醫院早前亦成立了機械臂外科中心，配備最新的第四代達文西機械臂手術系統，能夠以微創方式精準切除前列腺，為患者制定個人化治療方案，維持其生活質素。

前列腺癌個案顯著上升

根據醫院管理局的最新數據，2022 年香港錄得 2,758 宗前列腺癌新症，成為男性中第三常見的癌症，並在男性致命癌症中排名第四。與其他常見癌症相比，前列腺癌在近年顯著增長，2012 至 2022 年間，其新症數量累積增幅達 69.1%。

香港港安醫院—司徒拔道的泌尿外科顧問馬偉傑醫生指出，前列腺癌的分期通常根據腫瘤大小（T）、是否入侵淋巴結（N）以及是否擴散至其他部位（M）來劃分為一至四期。根據醫管局的數據，約 38%的新症患者在確診時屬於第一至第二期，即腫瘤尚未擴散至前列腺以外的範圍。

傳統前列癌治療是全器官治療而非局部治療

前列腺癌的治療選擇取決於癌細胞的活躍度和覆蓋範圍。某些癌細胞生長較緩慢，而另一些則較為激進。因此在制定治療方案時需考慮多個因素，包括年齡、健康狀況、癌症期數、預期壽命、患者意向、前列腺特異抗原（PSA）的數值及上升速度，以及格里森評分（Gleason score）。馬醫生指出，格里森評分越高，前列腺癌的生長速度和擴散風險便越高。

對於不同期數的前列腺癌，治療方案會有所不同。馬醫生指出，第一至第二期通常會選擇積極監察（定期抽血、活檢）或全器官治療（如前列腺全切除手術或放射治療）。第三期則可能需要前列腺全切除和盆腔淋巴結切除手術，或選擇放射治療。第四期治療則包括荷爾蒙治療、化療、新一代口服荷爾蒙抑制藥和放射治療。然而，傳統的全器官治療可能會對患者的排尿、性功能及直腸造成副作用，影響生活質素。

前列腺癌治療新方向：局部治療

隨著個人化癌症治療的普及，前列腺癌的治療方法迎來突破。局部治療為合適的患者保留前列腺及其功能。馬醫生指出，局部治療針對腫瘤僅局限於前列腺內（通常在一側），並未擴散至其他組織或器官，目的是摧毀癌細胞，同時保留健康組織，以減少副作用和併發症。

目前有多種局部治療方法，包括高能聚焦超聲（HIFU）、冷凍消融（Cryoablation）、微波消融（Microwave Ablation）及 電穿孔局部消融術（Irreversible Electroporation）。馬醫生強調，電穿孔局部消融術能在不使用熱能的情況下破壞目標組織，安全應用於接近重要結構的部位，避免長期損傷，而且手術時間較其他方法更快。

電穿孔局部消融術技術 電流會令癌細胞膜穿孔

電穿孔局部消融術只需要經皮膚置入數枝電極針包圍癌細胞，電流只經過癌細胞而不損害血管或神經。電流會使癌細胞的細胞膜穿孔，導致細胞膜內外失去平衡，細胞不能正常運作，便會逐漸凋亡。馬醫生指出，相較於其他局部治療方式，電穿孔局部消融術的獨特之處在於其採用非熱非冷凍的特性，能有效維護周圍重要結構的完整性，而且不會有散熱效應（散熱效應即指，血管內流動的血液帶走熱能，其周邊的癌細胞治療效果較低）。此外，在治療過程可以透過超聲波即時監察，以確保摧毀癌細胞。

在手術過程中，醫生會放置電極針以固定目標組織。每次是兩支電極針之間通電，但每個案例一般放置 4 至 6 支電極針以確保包圍癌細胞範圍。電極針安裝完成後，醫生將啟動電脈衝，從而摧毀癌細胞。電極針以外的正常前列腺組織能保持完好，避免受到損傷。手術大約需要 1 至 1.5 小時完成，導尿管一般在術後 24 小時內移除並可如常小便，不會有尿失禁後遺症，手術後一至兩天可回家。

嚴重副作用僅為 4.1%

美國 2024 年的大型研究顯示，電穿孔局部消融術的嚴重副作用僅為 4.1%，且無尿失禁的情況，而術後 90 天內有 90.1%的患者能保持勃起功能。美國食品藥物管理局於 2024 年 12 月亦已正式批准該技術用於前列腺組織消融治療，並獲歐盟 CE 認證。

成功完成兩宗個案

香港港安早前於 2024 年 12 月成功完成兩宗使用電穿孔局部消融術治療前列腺癌的個案。馬醫生指出，首宗個案為一名 81 歲男士，曾接受心房消融術，近十年控制良好，無心律失常發作。該男士一直服用前列腺增生藥物，日常生活自理能力正常，且會外出旅行。然而，他在去年 11 月被確診為第二期前列腺癌，期望能以最安全的方式進行局部治療，並保留前列腺器官。最終，他選擇了電穿孔局部消融術。術後同一天，他已恢復正常飲食，兩天後成功移除排尿管並出院。治療後一周的覆診中，他表示無任何身體不適，排尿正常，且無皮膚腫痛。

第二宗個案為 75 歲男性，曾因良性胰臟動脈瘤接受栓塞治療。健康檢查中，他的前列腺抗原指數（PSA）從 2023 年 8 月的 3.85 mg/dL 上升至 2024 年 10 月的 5.0 mg/dL，且無排尿症狀。直至去年 11 月，經檢查後，確診為第一期前列腺癌，活檢組織中有 5%的癌細胞。面對積極監察或局部治療的選擇，患者期望能安全治療癌細胞並保留前列腺，因此選擇了電穿孔局部消融術。手術歷時 1 小時 5 分鐘，術後同一天他已恢復正常飲食，並於一天後成功移除排尿管及出院。

香港港安成立機械臂外科中心

香港港安去年成立了機械臂外科中心，並引入了最新的機械臂系統，包括第四代達文西機械臂手術系統。馬醫生指出，該系統可用於各種外科手術，包括前列腺癌切除，並透過清晰影像提升手術精細度，保留重要神經和血管，從而提高患者安全性和術後效果。

結合機械臂和電穿孔局部消融術，醫生可根據患者具體情況選擇最合適的治療方案，實現真正的個人化治療。馬醫生提醒，不同治療方案各有成效、副作用及風險，患者應與主診醫生商討，選擇最合適自己的治療方案。

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